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Description of new genera and species of North American Myriopoda (*Julidae*)

By C. H. BOLLMAN.

In examining the material of this family in the Museum of the Indiana University and my own collection, I have found that the following species do not appear to be described.

Fam. A. **JULIDAE**, Leach.

Genus I. **NANNOLENE**, gen. nov.

Antennae short, subclavate, joints longer than wide, second and sixth subequal, the latter enlarged as in *Cambala*. Mandibular combs 6 (5), Guathochilarium somewhat spatulate, stipes separated attenuated at the base, mentum entire, exposed, promentum divided almost as in *Cambala* or *Iulomorpha*; lingual lobes denticulated. Segments constricted in the middle, the anterior ten segments striate from the feet to the pore, striae diminishing on the others: at the junction of the anterior and posterior parts of almost every segment are round impressions, larger than the repugnatorial pore, which extend around all the segments except the anterior 6-8. Repugnatorial pore commencing on the sixth segment, placed in the posterior part. Fourth segment footless. Feet long and slender. Male: First pair of legs short, usual number of joints, somewhat thickened, unarmed; penultimate joint of the sixth and seventh pairs of legs produced on the inner side.

This genus is related more to *Cambala*, than any other, although it approaches *Iulomorpha* in the form of the promentum. The following species is the type.

Nanolene burkei, sp. nov. Light brown, a lateral row of large brown spots, a brown band between eyes. Slender, not smooth or pilose. Vertex smooth, a faint median sulcus, setigerous foveolae absent. Antennae equalling the width of body, pilose. Eyes distinct, triangular; ocelli 2 to 5. Segments 50 or 51. Sides of first segment striate, others moderately striate beneath, posterior margin of each segment with fine parallel striae. Last segment rounded; anal valves not marginate, pilose:

anal scale obtusely rounded, pilose. Repugnatorial pore small, not touching the transverse suture. Pairs of feet about 87, extending beyond the sides of body. Male: Mandibulary stipes a little produced in the middle; genitalia concealed.

Length of body 18 mm., width — mm.

Habitat. Utah, California.

I have examined two adults and two young of this species collected by Mr. James K. Burke after whom the species is named.

Genus II. **PARAJULUS**, Humbt. & Sauss.

To this genus belong our larger species of so-called *Julus*. From the latter genus it is easily separated by the number of mandibulary combs (10), the dwarfed second pair of feet and the form of the first segment of the male with its appendages.

Under the genus *Julus*, Wood says "In all species in which I have had the opportunity of examining sexes, the form of the first scutum distinguishes them with certainty. In the male its antero-posterior diameter is large, and there are well marked lateral margins running nearly at right angles to the others. In the female the anterior posterior diameter is much less, but laterally the scutum is so produced that the anterior and posterior margins may in most cases be said to meet one another at an angle. The males are further distinguished by a peculiar alteration of the first pair of feet, which are transformed into a pair of very large, thick organs."

By applying this remark to those species of which he had both sexes, we have most of the species known to be in this genus at present. The following is a key to the subgenera.

a. First segment enlarged in the male. First pair of feet of male large, crasate, numerous short tubercles on the inner side. **Parajulus.**

aa First segment alike in both sexes. First pair of feet of male short thick, tubercles absent. **Pseudojulus.**

Sub-genus *Parajulus*.

2. **Parajulus castaneus**, sp. nov. Color nearly the same as in *P. impressus*, (Say.) Moderately slender, rough, not pilose. Vertex finely wrinkled, a faint median sulcus, setigerous foveolæ present. Antennæ equalling the width of body. Eyes distinct, triangular, ocelli 54—8. Segments 42—51. Sides of first segment striated, others deeply striate beneath, above with numerous short lines, which are branched. Last segment produced into a moderate spine, projecting beyond the anal valves, not pilose; anal valves not marginate, pilose; anal scale obtusely rounded, small. Repugnatorial pore moderate, touching the transverse suture, which is sharply sinuate. Pairs of feet 66, equalling the width of body. Male. Mandibulary stipes strongly produced; coxæ of the second pair of feet as in *impressus*; genitalia about half concealed, composed of three plates; anterior plate round, clavate, pilose; middle plate curving up in front of anterior, and expanding between them into an elongate plate, which has three lobes or spines on the inner side, the first large, the second small and right behind it, the last small, placed near the end; posterior

plate curving upwards and inward till they meet and then outwards, end not bifid. Flagellum not detected. Length of body 23 mm.; width 2 mm.

Habitat. Ft. Snelling, Minnesota.

I have a male and female collected by Mr. George Howe. On account of the bad condition of the female, the ocelli and pairs of feet could not be counted.

Sub-genus *Pseudojulus*, sub. gen. nov.

3. *Parjulus obtectus*, sp. nov. Color as in *impressus*, but more bright. Robust, attenuated anteriorly, not smooth or pilose. Vertex with a median sulcus, setigerous foveolæ present. Antennæ exceeding the width of body. Eyes distinct, triangular; ocelli 40-55, arranged in 7-9 series. Segments 50-55. Sides of first segment striate; other segments deeply striate, upper surface almost as in *impressus*. Last segment produced into a rather large and robust spine, projecting beyond the anal valves; anal valves smooth, barely marginate; anal scale moderate, obtusely triangular. Repugnatorial pore large, not touching the transverse suture, which is deeply marginate. Pairs of feet 80-95, extending beyond the sides of body.

Male: Mandibular stipes not produced much beneath; coxæ of the second pair not drawn out; genitalia concealed.

Length of body 18-30 mm; width 1.8-2.2 mm;

Habitat. Boomington, Indiana and Florida.

I have examined a large number of females, but only a few males, and I have not attempted to give a description of the genitalia.

4. *Parajulus varius*, sp. nov. Color as in *impressus*, but of a different shade. Slender, not smooth or pilose. Vertex finely wrinkled, a median sulcus, setigerous foveolæ absent. Antennæ exceeding the width of body. Eyes distinct, triangular; ocelli 40-75, arranged in 7-9 series. Segments 50-55. Sides of first striate; others not deeply striate beneath, finely wrinkled and striate above. Last segment produced into a moderate spine, barely passing the anal valves, anal valves not marginate; anal scale large, triangular, sparsely pilose. Repugnatorial pore moderate, not touching the transverse suture, which is nearly straight. Pairs of feet 75-90, scarcely extending beyond the sides of body.

Male: Mandibular stipes not much produced beneath; genitalia concealed.

Length of body 18-24 mm; width 1.5-1.8 mm.

Habitat. San Diego, California, (Miss Rosa Smith); Ukiah, Cal., (Mr. James K. Burke); Rossario Mission, Lower California, (Mr. Charles Arcutt.)

I have examined two specimens from San Diego, three from Ukiah, and numerous specimens mostly broken from the latter locality. Those from the last place are very dark in color, but otherwise they do not differ.

Genus **SPIROBOLUS**, Brandt.

Sub-genus *Rhinocrinus*, Karsch.

5. *Spirobolus pensacolæ*, sp. nov. Above dark green, segments margined with reddish brown, face, anterior and posterior segments bright green, feet lighter

than in *marginatus*. Moderately robust, attenuated before, about twelve anterior segments crassate beneath, not smooth. Vertex smooth, sparsely punctate, median sulcus interrupted; elytral foveolæ 8. Antennæ short. Eyes trapezoidal; ocelli 45-7. Segments 49. First segment sulcate, anterior border sinuate; second segment with the lobe not so broad and more nearly triangular, than in *marginatus*. Other segments rough, punctation most numerous on the posterior half; striae decurved; strong on the posterior half. Last segment pointed, densely punctate; anal valves marginate; anal scale rounded. Repugnatorial pore large. Pairs of feet 92, extending beyond sides of body.

Length of body 86 mm; width 9 mm.

Habitat. Pensacola, Florida.

This species is described from one female, collected by the author in the spring of 1886. It is in all related to *marginatus* rather than any other of our species.

Spirobolus hebes, sp. nov. Ochraceous brown, a lateral row of spots, feet light. Robust, not attenuate, somewhat crassate, not smooth. Vertex smooth, sparsely punctate, median sulcus interrupted; clypeal foveolæ 8. Antennæ short. Eyes subtriangular; ocelli 29-38, arranged in 6 series. Segments 39-41. First segment acute, more so in the male than in the female; second segment strongly produced beneath; almost subquadrate, rounded. Other segments sparsely punctate, numerous short lines above, striae decurved. Repugnatorial pore small.

Pairs of feet 76-79, short. Male: Coxæ of the 3-6 pairs of feet most produced; ventral plate smooth, triangular. Genitalia inner part of anterior plate rough, twice as high as ventral plate, external part with the end rounded and not produced; posterior plate thick, a little bent, the end small and rounded, beneath are two serrated lobes and below these a hard and a blunt lobe.

Length of body 45.48 mm, width 7-8 mm.

Habitat. San Diego, California.

I have examined a male and female of this species collected by Miss Rosa Smith.

JULUS Linnaeus.

Julus owenii sp. nov. Pale brown, a lateral row of spots, a pale oval spot at the base of antennæ. Slender, not smooth, not pilose. Vertex rough, a faint median sulcus; setigerous foveolæ absent. Antennæ subclavate, equalling the width of body. Eyes indistinct, subrotund; ocelli not all filled out, about 28-6 or 7.

Segments 38-40. First segment thin, striate. Other segments striate above and beneath. Last segment rounded; anal valves not marginate; anal scale triangular. Repugnatorial pore large, touching transverse suture, which is excised. Pairs of feet 54-66, equal to the width of body. Male: Mandibular stipes not much produced; first pair of legs small, uncinatæ; genitalia concealed.

Length of body 9.2-16.6 mm.; width .6-7 mm.

Habitat. New Harmony, Indiana.

This species is described from two males collected by Dr. Richard Owen. It is related to *Julus hortensis* Wood.

Family **POLYDESMIDAE**, Leach.

Genus **PARADESMUS** Saussure.

Paradesmus evides sp. nov. Coloration as in *P. erythropygus*. Form more slender. Vertex smooth, median sulcus continuous, not much excavated between the antennae. First segment more rounded. Inner angle of the lateral carinae not serrated. Genitalia entirely different, short, robust, pilose, scarcely bent, grooved above at the end, and divided into two blunt lobes.

Length of body 26 mm.; width 4 mm.

Habitat. Winona, Minnesota.

I have examined one whole specimen and a number of broken ones, collected by Prof. J. M. Holzinger. This species can be easily separated from *erythropygus* by the markings of the vertex, the smooth lateral carinae and especially by the male genitalia.

Family **GEOPHILIDAE**, Leach.

Genus **GEOPHILUS** Leach.

Geophilus glaber sp. nov. Olivaceous, head, antennae and mouth parts brown, an indistinct black, median dorsal line. Robust attenuated posteriorly, not pilose, punctate; sternum wider than long; coxae longer than wide (7:5), armed: claw moderately curved, teeth weak.

Cephalic plate large, narrowed behind, longer than wide (10:8); frontal plate present; basal plate more than twice as wide as long (10:4), partly covered by the cephalic plate. First joints of antennae long. Anterior spiracle very large, oval; posterior small, nearly circular. Dorsal plates bisulcate: anterior predorsal plate small, posterior large; ventral plates with a median sulcus. Posterior coxae not much swollen, pores above and below, large and small. Last ventral plate large, sides rounded, not converging much. Anal pore large. Last pair of feet of female slender. Pairs of feet of the female 53-55.

Length of body 50-53 mm., width 2.5 mm.

Habitat. Utah, California. Ukiah.

I have examined three females collected by Mr. James K. Burke.

Observations on some North American Capsidae.

By P. R. ULLER.

Through the kindness of Mr. Andrew Bolter, I have recently received many important forms of this interesting group, some of which were the results of his careful collecting in distant parts of the United States, including localities as widely separated as Florida and California. Dr. Hagen has also sent me for study the extensive collections of these insects belonging to the Agassiz Museum at Cambridge, Mass. Also, other friends too numerous to mention, have placed their specimens at my disposal, so that I have at length been able to study long series of nearly all the described *Capsidae* of North America.

While studying the material alluded to, I have met with certain synonyms; and some new species, which I desire to record at this time.